TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
FREEPORT-MCMORAN MORENCI INC. – MORENCI MINE
AIR QUALITY PERMIT NO. 72683

I. INTRODUCTION

This Class I (Title V) renewal permit is issued to Freeport-McMoRan Morenci Inc. for the continued operation of the Morenci Mine located at 4521 U.S. Highway 191 in Morenci, Greenlee County, Arizona. This permit renews and supersedes Permit #57883.

A. Company Information

Facility Name:	Freeport-McMoRan Morenci Inc.-Morenci Mine
Facility Location/Address:	4521 U.S. Highway 191 Morenci, Greenlee County, Arizona 85540-9795

B. Attainment Classification

The facility is located in an area that is in attainment or unclassified for all criteria pollutants.

II. PROCESS DESCRIPTION

A. Process Description

The facility consists of the following major operations:

1. Mining Operations, including the drilling and blasting of ore in open-pit copper mines, three in-pit crushers and an ore conveying system.

2. The Morenci Concentrator and Metcalf Concentrator operations for production of copper and molybdenum concentrates through conventional milling and froth flotation operations.

3. The Metcalf Mine-for-Leach (MFL) Plant and five Solution Extraction and four Electrowinning facilities (SX/EW) operations for production of high quality copper cathodes through leaching and hydrometallurgy.

To support the above operations, the facility has various support operations, including the Combined Molybdenum Flotation Plant and Molybdenum Concentrate Processing Operations, Copper Concentrate Processing Operations, Tailings Operations, the Concentrate Leach Plant, two Lime Slaking Plants, Prill Bins, a Crushing and Screening Plant, a Concrete Batch Plant, and various Grizzly Operations.

The facility operates a Metcalf Combined Cycle Power Plant (MCCPP), which can be operated to generate additional power, when required. The MCCPP consists of two

combined cycle power plant units. Each unit consists of a natural gas turbine generator, natural gas boiler, steam turbine generator, and auxiliary equipment.

The facility also operates various diesel-fired emergency and non-emergency engines, emergency propane-fired engines, and various Miscellaneous Fuel Burning Equipment (water heaters, space heaters, boilers, etc.) The emergency engines are used in the event of outside commercial power interruption or when the power supply is unreliable. The emergency engines are also operated for maintenance checks, readiness testing, and/or certain non-emergency situations.

B. Air Pollution Controls

Particulate matter (PM) emissions at the facility are controlled by wet scrubbers, fabric filter dust collectors (FFDC), baghouses, and water spray systems at various emission points.

Fugitive dust emissions at the facility are controlled by wet suppression methods including water trucks, water sprays, surfactant use, dust suppression fans, water jets, foggers, and inherent moisture content.

PM and volatile organic compound (VOC) emissions from the Concentrate Leach Plant (CLP) are controlled by a wet scrubber.

III. COMPLIANCE HISTORY

Since the initial issuance of Permit No. 57883, there were 79 facility inspections including report reviews. One Notice of Correction (NOC) was issued for an opacity exceedance on June 13, 2018 during field inspection. This deficiency was subsequently corrected, and the case was closed on June 18, 2018.

IV. EMISSIONS

A. Facility-wide Emissions

The facility-wide potential emissions are provided in the Table 1 below. The facility-wide potential-to-emit (PTE) is above the Title V major source thresholds for nitrogen oxides (NOx), carbon monoxide (CO), particulate matter less than 10 microns (PM_{10}), and particulate matter less than 2.5 microns ($PM_{2.5}$). The facility has accepted voluntary emission limitations to continue to remain below the Prevention of Significant Deterioration (PSD) major source thresholds of 250 tons per year. Thus, the facility is considered a PSD "synthetic minor" source. Detailed emission calculations are available in the permit application package.

Table 1

Regulated Air Pollutant Emitted	PTE (tpy)			Facility-Wide Fugitive Emissions	Facility-Wide Total Emissions (Fugitive and Non-Fugitive)
	Mining, Ore Processing, and Support Operations [a, b]	MCCPP [c]	Facility-Wide [d]		
PM	227.59	4.34	231.93	14,027.00	14,258.37
PM_{10}	183.57	4.18	187.76	3,840.58	4,027.93
$PM_{2.5}$	161.64	3.78	165.42	491.33	656.75
CO	105.16	42.86	148.02	2,239.30	2,387.32
NO_X	76.12	164.76	240.88	99.17	340.05
SO_2	1.89	0.37	2.26	0.81	3.07
VOC	40.79	1.70	42.50	46.10	88.60
H_2SO_4	--	--	--	41.76	41.76
H_2S	2.06	--	2.06	--	2.06
Greatest Single HAP (xylenes)	6.83	0.03	6.86	6.68	6.86
Total HAPs	14.92	0.59	15.51	13.13	15.51

[a] Excludes the MCCPP.

[b] For all regulated air pollutants except HAPS, the PTE includes non-fugitive emissions only. For HAPs, the PTE includes both fugitive and non-fugitive emissions.

[c] For all regulated air pollutants (including HAPS), the PTE includes both fugitive and non-fugitive emissions.

[d] For all regulated air pollutants except HAPS, the PTE includes non-fugitive emissions from all operations and fugitive emissions from the MCCPP. For HAPs, the PTE includes both fugitive and non-fugitive emissions.

B. Categorical Source Within A Non-Categorical Source

For supporting the Morenci Mine operations, FMMI has two categorical sources embedded within its primary operations that constitute a non-categorical source (copper mine):

1. The MCCPP (a fossil fuel-fired steam electric plant and combined cycle gas turbine of more than 250 MMBtu/hour heat input); and

2. Fossil fuel-fired boilers totaling more than 250 MMBtu/hour of heat.

The PTE of FMMI's fossil fuel-fired boilers totaling more than 250 MMBtu/hour heat input is below the PSD major source thresholds (for a categorical source in an attainment area) such that it is considered a PSD minor source. The MCCPP has a PTE for NOx above the PSD major source threshold of 100 tons per year for a categorical source located in an attainment area and is therefore considered a PSD major source for NOx. As a result, any future change at the MCCPP resulting in both a significant emissions increase and a significant net emissions increase for NOx would constitute a major modification under the PSD program. The MCCPP is not considered a PSD "major source" for the other pollutants. CO and NO_X emissions for the MCCPP turbines and boilers are calculated using voluntarily accepted emission limitations.

C. Alternate Operating Scenarios

The renewal permit contains various alternative operating scenarios (AOSs) that are identified in the equipment list. Potential emissions from AOS1, AOS2, AOS3, and AOS5 are less than or equal to emissions from non-AOS operations and thus have no impact on the facility-wide potential emissions. Potential emissions from AOS4 are greater than non-AOS operations, and are included in the maximum facility-wide totals.

V. MINOR NEW SOURCE REVIEW (NSR)

This permit renewal application does not propose to make any changes that would increase potential to emit in excess of the permitting exemption thresholds. As a result, minor NSR does not apply.

VI. APPLICABLE REGULATIONS

Table 2 identifies applicable regulations and verification as to why that standard applies.

Table 2

Unit	Control Device	Rule	Discussion
Crushing operations at mine, and subsequent material transfer and ore processing operations at the Morenci Concentrator, Metcalf Concentrator, Metcalf MFL plant, and Copper and Molybdenum Concentrate Processing Operations	Wet scrubbers, FFDCs, Bag Collectors, Wet suppression methods (including water sprays, surfactant use, dust suppression fans, water jets, foggers, inherent moisture content.)	40 CFR 60 Subpart LL A.A.C. R18-2-721	New Source Performance Standards (NSPS) 40 CFR 60 Subpart LL is applicable to each crusher and screen in open-pit mines; each crusher, screen, bucket elevator, conveyor belt transfer point, thermal dryer, product packaging station, storage bin, enclosed storage area, truck loading station, truck unloading station, railcar loading station, and railcar unloading station at the mill or concentrator that commences

Unit	Control Device	Rule	Discussion
			construction or modification after August 24, 1982. Three conveyor belt transfer points, previously regulated by ADEQ under A.A.C. R18-2-721 will be subject to NSPS Subpart LL as of this permit action. Standards of Performance for Existing Nonferrous Metals Industry Sources under A.A.C. R18-2-721 are applicable to the above equipment constructed on or before to August 24, 1982, or any other equipment not covered above.
Natural Gas Turbines 1 and 2	None	A.A.C R18-2-719	As these turbines were manufactured prior to the October 3, 1977, they are not subject to the requirements under 40 CFR 60 Subpart GG. Therefore, Standards of Performance for Existing Stationary Rotating Machinery under A.A.C. R18-2-719 are applicable to these gas turbines.
Natural Gas Boilers 1 and 2	None	A.A.C. R18-2-703	As these steam generating units were manufactured prior to August 17, 1971, they are not subject to NSPS requirements under 40 CFR 60 Subpart D or Da. Therefore, Standards of Performance for Existing Fossil-fuel Fired Steam Generators under A.A.C. R18-2-703 is applicable to these boilers as they are over 73 megawatts capacity.
Cooling Towers 1 and 2	Drift eliminators	A.A.C. R18-2-730 A.A.C. R18-2-702	Requirements for unclassified sources under A.A.C. R 18-2-730 are applicable to the cooling towers.
Lime Slaking Plants	Dust filter, Bin Vent Filter, water sprays, scrubber	A.A.C. R18-2-730 A.A.C. R18-2-702	Since the facility is not manufacturing lime, 40 CFR 60 Subpart HH is not applicable. Therefore, requirements for unclassified sources under A.A.C. R 18-2-730 are applicable to lime slaking plants.
Solution Extraction/ Electrowinning (SX/EW) operations	Covers for tanks, foam, blankets, surfactants,	A.A.C. R18-2-730 A.A.C. R18-2-702	Requirements for unclassified sources under A.A.C. R 18-2-730 are applicable to SX/EW operations.

Unit	Control Device	Rule	Discussion
	brushes, thermal retention balls etc.		
Concentrate Leach Plant	Wet scrubber, bin vent filters, mist eliminators	A.A.C. R18-2-730 A.A.C. R18-2-702	Requirements for unclassified sources under A.A.C. R 18-2-730 are applicable to Concentrate Leach Plant.
Concrete Batch Plant	Bin vent filters	A.A.C. R18-2-723 A.A.C. R18-2-702	Concrete Batch plant is subject to Standards of Performance for Existing Concrete Batch Plants under A.A.C. R18-2-723.
Crushing and Screening Plant	Wet suppression, spray bars	A.A.C. R18-2-722 A.A.C. R18-2-702 NSPS 40 CFR 60 Subpart OOO	Since the facility commenced construction after August 31, 1983, NSPS requirements for Nonmetallic Mineral Processing Plants under 40 CFR 60 Subpart OOO are applicable to each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station.. Static (non-moving) grizzlies are not considered to be screening operations such that the Scalping Grizzly Screen in the Crushing and Screening Plant is subject to the Standards of Performance for Existing Gravel or Crushed Stone Processing Plants under A.A.C. R18-2-722. Additionally, the fugitive emission limit of 40 CFR 60 Subpart OOO does not apply when transferring to a stockpile so these emissions in the Crushing and Screening Plant are also subject to the Standards of Performance for Existing Gravel or Crushed Stone Processing Plants under A.A.C. R18-2-722.
Grizzly operations	Wet suppression system (if needed)	A.A.C. R18-2-721 A.A.C. R18-2-722	Grizzly operations for metallic mineral material are subject to the Standards of Performance for Existing Nonferrous Metals Industry Sources Under A.A.C. R18-2-721. Grizzly operations for non-metallic minerals are subject to Existing Gravel or Crushed Stone Processing Plant Sources requirements under A.A.C. R18-2-722.

Unit	Control Device	Rule	Discussion
Prill Bins	None	A.A.C. R18-2-730 A.A.C. R18-2-702	Requirements for unclassified sources under A.A.C. R 18-2-730 are applicable to the prill bins.
Emergency and Non-Emergency Compression Ignition Internal Combustion Engines	None	A.A.C. R18-2-719 NSPS 40 CFR 60 Subpart IIII NESHAP 40 CFR 63 Subpart ZZZZ	Engines not subject to 40 CFR 60 Subpart IIII are subject to Existing Stationary Rotating Machinery standards under A.A.C. R18-2-719. The engines that commence construction after July 11, 2005 and are either manufactured after April 1, 2006 (and are not fire pump engines) or are manufactured after July 1, 2006 and are fire pumps are subject to NSPS 40 CFR 60 Subpart IIII. The National Emission Standards for Hazardous Air Pollutants (NESHAP) 40 CFR 63 Subpart ZZZZ are applicable to reciprocating internal combustion engines (RICE) located area sources of HAPs.
Emergency Spark Ignition Internal Combustion Engines		A.A.C. R18-2-719 NSPS 40 CFR 60 Subpart JJJJ NESHAP 40 CFR 63 Subpart ZZZZ	Emergency SI engines not subject to 40 CFR 60 Subpart JJJJ are subject to Existing Stationary Rotating Machinery standards under A.A.C. R18-2-719. The emergency SI engines that commence construction after June 12, 2006 and are manufactured on or after January 1, 2009 for emergency engines greater than 25 hp and on or after July 1, 2008 for all other engines less than 500 hp are subject to NSPS 40 CFR 60 Subpart JJJJ. NESHAP 40 CFR 63 Subpart ZZZZ is applicable to spark ignition internal combustion engines located area sources of HAPs.
Small Industrial External Combustion Equipment		NSPS 40 CFR 60 Subpart Dc A.A.C R18-2-724	Small Industrial Boilers 1, 2, 3, 4, and 5, and Natural Gas Startup Boiler are subject to NSPS 40 CFR 60 Subpart Dc as these are constructed after June 9, 1989

Unit	Control Device	Rule	Discussion
			and have maximum design heat input greater than or equal to 10 MMBtu/hr but less than 100 MMBtu/hr.) Other small industrial external combustion equipment are subject to Standards of Performance for Fossil-fuel Fired Industrial and Commercial Equipment under A.A.C R18-2-724.
Diesel Storage Tanks		A.A.C. R18-2-730	Requirements for unclassified sources under A.A.C. R 18-2-730 are applicable to diesel storage tanks.
Gasoline Storage and Dispensing facilities		A.A.C. R18-2-710 NESHAP 40 CFR 63 Subpart CCCCCC	Gasoline Storage tanks are less than 20,000 gallons and hence not subject to NSPS 40 CFR 60 Subpart K, Ka or Kb. Thus, these tanks are subject to requirements under A.A.C. R18-2-710. NESHAP 40 CFR 63 Subpart CCCCCC is applicable to gasoline storage tanks and gasoline dispensing facilities.
Fugitive dust sources	Water Trucks Dust Suppressants	A.A.C. R18-2 Article 6	These standards are applicable to all fugitive dust sources at the facility.
Abrasive Blasting	Wet blasting; Dust collecting equipment; Other approved methods	A.A.C. R-18-2-702 A.A.C. R-18-2-726	These standards are applicable to any abrasive blasting operation.
Spray Painting	Enclosures	A.A.C. R18-2-702 A.A.C. R-18-2-727	This standard is applicable to any spray painting operation.
Demolition/renovation operations	N/A	A.A.C. R18-2-1101.A.12	This standard is applicable to any asbestos related demolition or renovation operations.

VII. PREVIOUS PERMIT AND CONDITIONS

A. Pervious Permits

Current Operating Permit No. 57883 was issued on January 30, 2014. Subsequent revisions to the operating permit were issued as follows:

Table 3

S. No.	Permit #	Issue Date	Application Basis
1	57883	January 30, 2014	Title V Renewal Permit
2	59937	July 29, 2014	Minor Permit Revision
3	60254	July 29, 2014	Minor Permit Revision
4	61566	December 11, 2014	Administrative Amendment
5	61578	February 5, 2015	Minor Permit Revision
6	63251	February 9, 2016	Minor Permit Revision
7	65067	January 31, 2017	Minor Permit Revision
8	70923	May 29, 2018	Minor Permit Revision

B. Changes to Previous Permit Conditions

Table 4 identifies the Conditions that are revised or deleted. All other Conditions remain unchanged.

Table 4

Condition # in Permit No. 57883 (as revised by 70923)	Determination			Comments
	Revised	**Keep**	**Delete**	
Attachment "A"	X			Attachment A is revised to represent the most recent template language
Attachment "B"				
I.A.1 and I.D	X			Opacity monitoring requirements are revised and renumbered.
1.A.2	X			General requirement for operation and maintenance is revised.
I.B.1	X			The requirement for maintaining records of operations and maintenance instructions is retained.

Condition # in Permit No. 57883 (as revised by 70923)	Determination			Comments
	Revised	Keep	Delete	
I.B.2		X		The requirement to submit reports of all monitoring activities along with the semi-annual compliance certifications is retained.
I.C			X	The general Compliance Assurance Monitoring (CAM) requirements are no longer required because, based on updated emission calculations which account for inherent moisture in the process, the pollutant-specific emission units are not subject to CAM.
Section II		X		The requirements for crushing operations in the mine are retained except that the Permittee has voluntarily proposed a more stringent PM and PM_{10} emission limitation of 0.004 gr/dscf (previously 0.01 gr/dscf) for In-Pit Crusher 1 FFDC and Pollution Control Devices for the AOS5 Crushers /conveyors. Also, performance testing requirements are streamlined as described in Section IX of this Technical Support Document (TSD).
Section III		X		The requirements for material transfer operations at the facility are retained except that the Permittee has voluntarily proposed a more stringent PM and PM_{10} emission limitation of 0.004 gr/dscf (previously 0.01 gr/dscf) for P1/P13 FFDC, and P13/P14 & P13/R9 FFDC. Also, performance testing requirements are streamlined as described in Section IX of the TSD.
Section IV		X		The requirements for Concentrators operations are retained except that the performance testing requirements are streamlined as described in Section IX of the TSD.
Section V		X		The requirements for Metcalf Combined Cycle Power Plant are retained except that the Permittee has voluntarily proposed a fuel quantity limitation of 153,000 MMBtu/year (previously 170,000 MMBtu/year) for Natural Gas Boilers 1 and 2.
Section VI		X		The requirements for lime slaking plants are retained.
Section VII		X		The requirements for Solution Extraction/ Electrowinning Systems are retained.

Condition # in Permit No. 57883 (as revised by 70923)	Determination			Comments
	Revised	Keep	Delete	
Section VIII		X		The requirements for Concentrate Leach Plant and Prill Bins are retained.
Sections IX		X		The requirements for Diesel-fired Emergency Engines are retained.
Section X		X		The requirements for Storage tanks and gasoline dispensing facilities are retained.
Section XI		X		The requirements for crushing and screening plant are retained.
Section XII		X		The requirements for grizzly operations are retained.
Section XIII		X		The requirements for Concrete Batch Plant are retained.
Section XIV		X		The requirements for sources of fugitive dust are retained.
Section XV			X	The requirements for mobile sources are deleted as ADEQ has no authority to regulate mobile sources. The fugitive dust emissions from mobile sources are now addressed in the Section "Fugitive Dust Requirements".
Section XVI		X		The requirements for abrasive blasting, use of paint, and demolition/renovation are retained.
Section XVII		X		The requirements for Alternate Operating Scenarios are retained.
Section XVIII				The requirements for Propane-fired Emergency Engines are retained.
Section XIX		X		The requirements for miscellaneous fuel burning equipment are retained.
Section XX		X		The requirements for Diesel-fired non-emergency Engines are retained.

C. CAM Evaluation

In the previous permit, two pollutant-specific emissions units (PSEUs) (Secondary Screen 1 associated with the Secondary Screening FFDC 1 (Process #017-280) and Secondary Screen 2 associated with Secondary Screening FFDC 2 (Process #017-281)) were subject to CAM requirements. Emission calculations have been updated to account for the inherent moisture content of 3.2% in the ore, and demonstrate that the PSEUs are not subject to CAM requirements. ADEQ concurs with this evaluation and hence CAM requirements have been removed from the permit.

VIII. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

A. Facility Wide

1. Along with the semiannual compliance certification, the Permittee is required to submit summary reports of all monitoring activities required by the permit.

2. The Permittee is required to maintain, on-site, records of the manufacturer's specifications or an Operation and Maintenance Plan for all pollution control equipment and fuel combustion equipment listed in the permit.

3. The Permittee is required to promptly report any deviations from the permit Conditions identified in Condition I.B.3 of Attachment "B." Deviations from remaining permit conditions must be submitted along with the semiannual compliance certification.

4. Opacity Monitoring

   a. The Permittee is required to conduct instant opacity observations or 6-minute opacity observations at the frequencies specified in various permit conditions by an EPA Reference Method 9 Certified Observer.

   b. If the visible emissions on an instantaneous basis appear less than or equal to the applicable opacity standard, then the Permittee is required to keep a record of the name of the observer, the date on which the instantaneous survey was made, and the results of the instantaneous survey.

   c. If the visible emissions on an instantaneous basis appear greater than the applicable opacity standard, then the Permittee is required to conduct a six-minute observation of the visible emissions.

   d. If the six-minute observation of the visible emissions is less than or equal to the applicable opacity standard, then the Permittee is required to record the name of the observer, the date on which the six-minute observation was made, and the results of the six-minute observation.

   e. If the six-minute observation of the visible emissions is greater than the applicable opacity standard, then the Permittee is required to adjust or repair the controls or equipment to reduce opacity to less than or equal to the opacity standard, record the name of the observer, the date on which the six-minute observation was made, the results of the six-minute observation, all corrective action taken, and report the event as an excess emission.

B. Mining Operations, Morenci and Metcalf Concentrators, Metcalf MLF Plant and Combined Molybdenum Flotation Operations, & Copper and Molybdenum Concentrate Processing Operations

1. The Permittee is required to conduct a bi-weekly survey of the visible emissions from the emission units including fugitive emissions to demonstrate compliance with applicable opacity standards.

2. At all times, including periods of startup, shutdown, and malfunction, the Permittee is required to maintain and operate the fabric filter dust collectors, wet scrubbers, dust collectors in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.

3. For the equipment equipped with wet scrubbers (with the exception of non-NSPS equipment), the Permittee is required to calibrate, maintain, and operate monitoring devices for continuous measurement of the change in pressure of the gas stream through the scrubber and the scrubbing liquid flow rate to the scrubbers. The Permittee is required to submit semiannual reports of occurrences when the measurements of the scrubber pressure loss (or gain) or liquid flow rate differ by more than ±30% from the average obtained during the most recent performance test.

4. Alternate Operating Scenario (AOS) Operations – (AOS1 through 5)

    a. While making change from one operating scenario to another operating scenario, the Permittee is required to maintain contemporaneous records of the scenario under which the facility is operating.

    b. While operating Combined Molybdenum Flotation Operations under AOS4, the Permittee is required to maintain records of the date and time of operation of AOS4 and the H_2S Scrubber System.

C. Lime Slaking Plants

1. At all times, including periods of startup, shutdown, and malfunction, the Permittee is required to maintain and operate the dust filters on lime silos 1 and 2, and bin vent filter on Metcalf Lime Silo in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.

2. The Permittee is required to conduct a bi-weekly survey of the visible emissions from the emission units including fugitive emissions to demonstrate compliance with the opacity standard.

D. Solution Extraction/Electrowinning (SX/EW) operations

1. At all times, including periods of startup, shutdown, and malfunction, the Permittee is required to utilize covers on the mixer-settler units of the full-scale facilities, and the mixer units of the small-scale Modoc Test Facility to minimize volatile organic compound and hazardous air pollutant emissions.

2. At all times, including periods of startup, shutdown, and malfunction, the Permittee is required to utilize foam, blankets, surfactants, brushes, or thermal retention balls

on the cells associated with Electrowinning process to minimize sulfuric acid mist and hazardous air pollutant emissions.

3. The Permittee is required to maintain records of the control measures used in the SX/EW systems.

4. The Permittee is required to conduct a bi-weekly survey of the visible emissions from the emission units to demonstrate compliance with the opacity standards.

E. Concentrate Leach Plant

1. At all times, including periods of startup, shutdown, and malfunction, the Permittee is required to maintain and operate mist eliminators on PLV and Oxygen Plant cooling towers to minimize particulate matter emissions.

2. At all times, including periods of startup, shutdown, and malfunction, the Permittee is required to operate bin vent filters flocculants bin, lime silo and supersack unloader to minimize particulate matter emissions.

3. At all times, including periods of startup, shutdown, and malfunction, the Permittee is required to maintain and operate the PLV 2-Stage Scrubber to minimize particulate matter and volatile organic compound emissions from the Pressure Leach Vessel.

4. The Permittee is required to conduct a bi-weekly survey of the visible emissions from the emission units to demonstrate compliance with the opacity standards.

F. Concrete Batch Plant

1. At all times, including periods of startup, shutdown, and malfunction, the Permittee is required to maintain and operate the bin vent filter on the fly ash silo and cement silo for minimizing particulate matter emissions.

2. The Permittee is required to conduct a bi-weekly survey of the visible emissions from the emission units to demonstrate compliance with the opacity standard.

G. Crushing and Screening Plant

1. The Permittee is required to calibrate, maintain, and operate monitoring devices to determine and record daily the process weight of gravel or crushed stone produced.

2. The Permittee is required to conduct a bi-weekly survey of the visible emissions from the emission units to demonstrate compliance with the applicable opacity standard.

H. Turbines and Boilers in the Metcalf Combined Cycle Power Plant (MCCPP)

1. The Permittee is required to keep records of monthly and 12-month rolling total of the total fuel consumed in Natural Gas Turbines 1 and 2 (in units of MMBtu) to demonstrate compliance with the fuel use limitation.

2. The Permittee is required to keep records of monthly and 12-month rolling total of the total fuel consumed in Natural Gas Boilers 1 and 2 (in units of MMBtu) to demonstrate compliance with the fuel use limitation.

I. Cooling Towers in MCCPP

1. At all times, including periods of startup, shutdown, and malfunction, the Permittee is required to maintain and operate mist eliminators on the Cooling Towers 1 and 2 to minimize particulate matter emissions.

2. The Permittee is required to conduct a quarterly survey of the visible emissions from the emission units to demonstrate compliance with the applicable opacity standard.

J. Engines

The Permittee is required to conduct a quarterly survey of the visible emissions from the stacks of diesel-fired engines, when in operation, to demonstrate compliance with the applicable opacity standard.

K. Small Industrial External Combustion Equipment

1. The Permittee is required to conduct a quarterly survey of the visible emissions from the diesel-fired emission units to demonstrate compliance with the applicable opacity standard.

2. The Permittee is required to keep records of monthly and 12-month rolling total of the total fuel consumed in Small Industrial Natural Gas Boilers 1, 2, 3, 4, and 5 (in units of MMBtu) to demonstrate compliance with the fuel use limitation.

3. The Permittee is required to keep records of monthly and 12-month rolling total of the total fuel consumed in the Natural Gas Startup Boiler (in units of MMBtu) to demonstrate compliance with the fuel use limitation.

L. Fugitive Dust

1. The Permittee is required to keep record of the dates and types of dust control measures employed.

2. The Permittee is required to show compliance with the opacity standards by having a Method 9 certified observer perform a monthly survey of visible emission from fugitive dust sources. The observer is required to conduct a 6-minute Method 9 observation if the results of the initial survey appear on an instantaneous basis to exceed the applicable standard.

3. The Permittee is required to keep records of the name of the observer, the time, date, and location of the observation and the results of all surveys and observations.

4. The Permittee is required to keep records of any corrective action taken to lower the opacity of any emission point and any excess emission reports.

M. Periodic Activities

1. The Permittee is required to record the date, duration and pollution control measures of any abrasive blasting project.

2. The Permittee is required to record the date, duration, quantity of paint used, any applicable MSDS, and pollution control measures of any spray painting project.

3. The Permittee is required to maintain records of all asbestos related demolition or renovation projects. The required records include the "NESHAP Notification for Renovation and Demolition Activities" form and all supporting documents.

IX. PERFORMANCE TESTING REQUIREMENTS

A. Particulate Matter (PM and PM_{10}) Testing

These requirements are streamlined as below:

1. If an emission unit equipped with a pollution control device has not been tested previously, the Permittee is required to conduct initial performance test within 60 days of achieving the maximum production rate, but no later than 180 days of the startup, for PM and PM_{10} on the stacks of the pollution control devices to demonstrate compliance with the emission limits in the permit.

2. For emission units which have been tested previously, the Permittee is required to conduct performance tests for PM and PM_{10} on the stacks of the pollution control devices once during the permit term to demonstrate compliance with the emission limits in the permit.

3. If the results of any performance tests in 1 or 2 above is less than or equal to 70% of the applicable emissions limits, no further testing is required for that control device during the permit term.

4. If the result of any performance test is greater than 70% of the emission limit, the Permittee must complete subsequent performance tests for PM and PM_{10} on the stack of that pollution control device on annual basis (between 11 and 13 months from the date of the previous test).

5. If the result of any subsequent performance test is below 70%, no further testing is required for that control device during the permit term.

B. Concentrate Leach Plant

1. The Permittee shall conduct performance tests for PM, PM_{10}, and VOC on the PLV 2-Stage Scrubber (Process #014-239) a minimum of once during the permit term to demonstrate compliance with the applicable emission limits.

2. If the results of any performance test is less than or equal to 70% of the applicable emission limits, no further testing is required for the PLV 2-Stage Scrubber (Process #014-239) during the permit term.

3. If the result of any performance test is greater than 70% of the applicable emission limits, the Permittee shall conduct subsequent performance test(s) for PM, PM_{10}, and/or VOC on the stack of the PLV 2-Stage Scrubber (Process #014-239) on an annual basis (between 11 and 13 months from the date of the previous test).

4. If the result of any subsequent performance test is below 70% of the applicable emission limits, no further testing is required for the PLV 2-Stage Scrubber (Process #014-239) during the permit term.

C. Metcalf Combined Cycle Power Plant

1. When operating Natural Gas Turbine 1 and 2 in stand-alone mode, the Permittee shall conduct performance tests on each turbine for every 1,440 operating hours, but not less frequent than once during the permit term, to demonstrate compliance with the NO_X and CO emission limits

2. When operating Natural Gas Boiler 1 or Natural Gas Boiler 2 in stand-alone mode, within 90 days of restart, the Permittee shall conduct performance tests to demonstrate compliance with the NO_X and CO emission limits.

3. Within 90 days of restart of Natural Gas Boiler 1 operating in combined cycle mode with Natural Gas Turbine 1, or Natural Gas Boiler 2 operating in combined cycle mode with Natural Gas Turbine 2, the Permittee shall conduct performance tests to demonstrate compliance with the emission limits

X. LIST OF ABBREVIATIONS

A.A.C. ..... Arizona Administrative Code
ADEQ ..... Arizona Department of Environmental Quality
AOS. ..... Alternative Operating Scenario
CFR ..... Code of Federal Regulations
CO ..... Carbon Monoxide
FFDC ..... Fabric Filter Dust Collectors
HAP ..... Hazardous Air Pollutant
hp ..... Horsepower
lb/hr ..... Pound per Hour
MCCPP ..... Metcalf Combined Cycle Power Plant
MFL ..... Mine-for-Leach
NESHAP ..... National Emission Standard for Hazardous Air Pollutants
NOC ..... Notice of Opportunity to Correct
NO_x ..... Nitrogen Oxides
NSPS ..... New Source Performance Standards
NSR ..... New Source Review
PM ..... Particulate Matter
PM_{10} ..... Particulate Matter Nominally less than 10 Micrometers
$PM_{2.5}$ ..... Particulate Matter Nominally less than 2.5 Micrometers
PSD ..... Prevention of Significant Deterioration
PTE ..... Potential-to-Emit
SO_x ..... Sulfur Oxides
SX/EW ..... Solution Extraction and four Electrowinning
tpy ..... Tons per year
VOC ..... Volatile Organic Compound